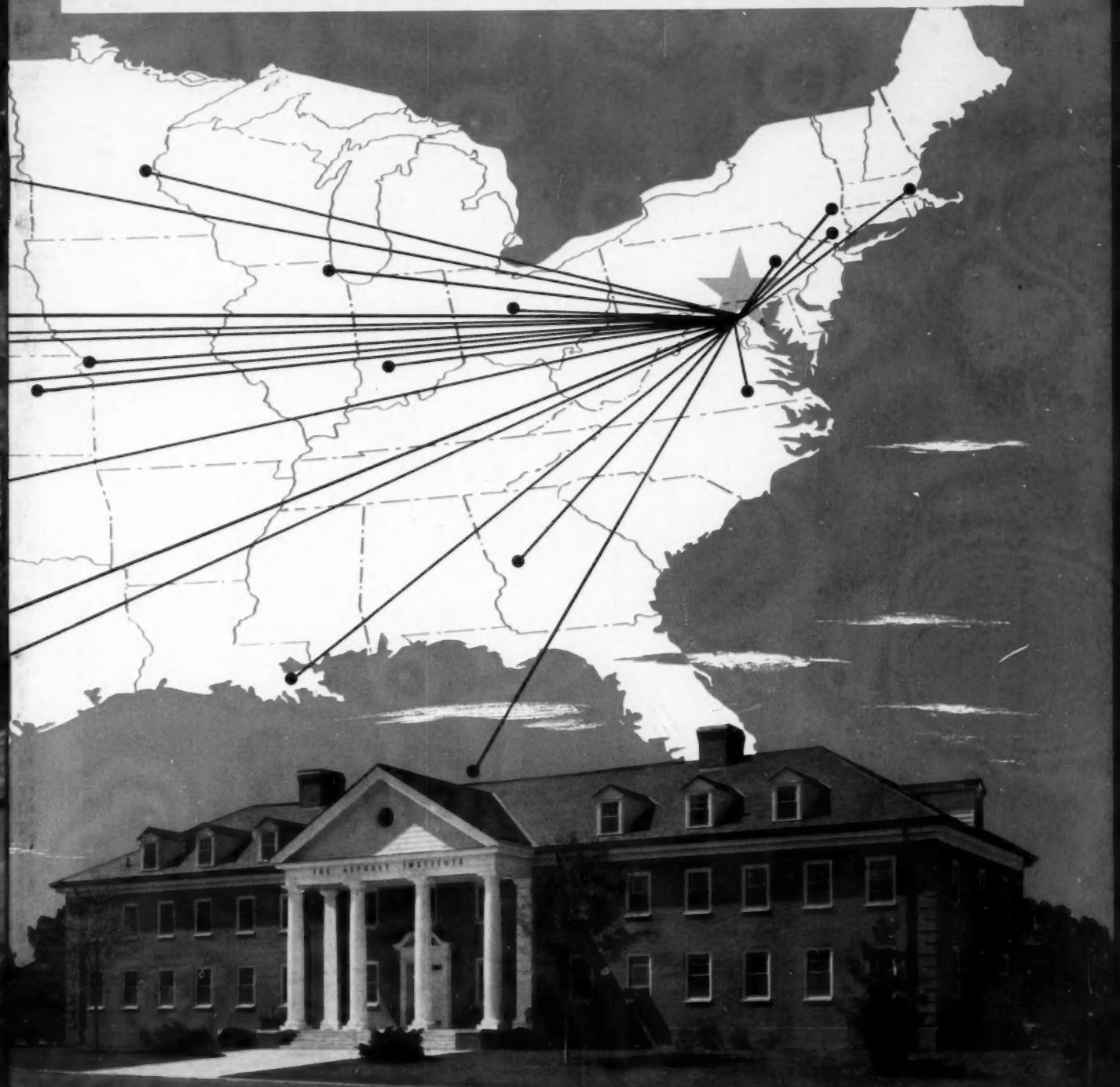


# ASPHALT INSTITUTE

*Quarterly*

JULY, 1955





**B**EFORE a plaque commemorating the dedication of the Asphalt Institute Building, Institute President J. E. Buchanan (left) expresses to Mr. J. N. Byrd, Chairman of the Building Committee, the appreciation of the entire Institute staff for the fine new laboratory and office facilities that have been provided and located on the campus of the University of Maryland.

It was largely through the efforts of Byrd and his committees, in cooperation with University officials, that the construction of the beautiful Georgian edifice and the Institute's move to Maryland were accomplished.



# ASPHALT INSTITUTE

*Quarterly*

## Editorial

Departing from its theme that customarily deals with the various aspects of asphalt construction, this issue of the *Quarterly* presents the story of the new home of The Asphalt Institute on the campus of the University of Maryland.

We believe that the account of the exercises formally dedicating our handsome new building, of the circumstances attending our move from New York City, and the description of our up-to-the-minute laboratory facilities will be of special interest to our readers; for not only has the Institute reached a significant stage in its 35-year-old history, but also, we think, the establishment of a permanent home for its executive offices and laboratories symbolizes the tremendously important position that petroleum asphalt and the industry which sponsors it have achieved within the economic and social structure of our nation. Asphalt today is truly an indispensable construction material.

In recognition of the fruitful efforts on the part of the Directors of The Asphalt Institute and the President, Board of Regents and other officials of the University of Maryland in bringing together their respective organizations in close association, the entire headquarters and field staff of the Institute expresses its most sincere gratitude and congratulations for a plan well conceived and implemented.

## A SPECIAL TRIBUTE TO ARVIN S. WELLBORN BY THE PRESIDENT OF THE ASPHALT INSTITUTE



Now that the executive offices and laboratories of The Asphalt Institute are firmly established in their new quarters, it is altogether fitting that special tribute be paid to a man whose tireless and unselfish efforts have, up to this time, been virtually unsung. I refer to Arvin S. Wellborn, Chief Engineer of The Asphalt Institute, whose coordinating and administrative labors contributed so much to the successful attainment of the goal which had been set—the establishment of a permanent home for our organization. On behalf of our entire staff, the members and directors of the Institute, in the best interests of whom he ceaselessly and effectively toiled, we offer him our deepest thanks.

—J. E. BUCHANAN

Vol. 7, No. 3, July, 1955

### EDITOR

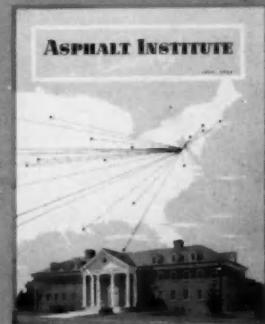
Richard C. Dresser

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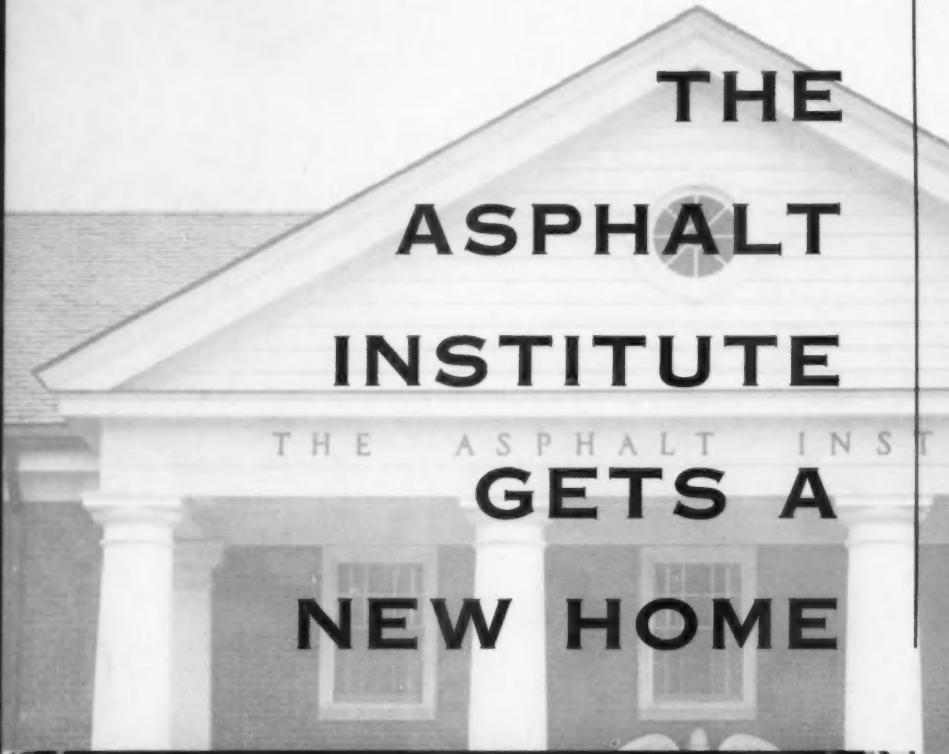
This special Dedication Issue of the Quarterly features a cover by James J. Fisher depicting the new headquarters building of The Asphalt Institute at College Park, Maryland and locating the Institute's 21 Division, District and Area offices throughout the U. S. The new building houses the executive offices and laboratories.



The Asphalt Institute Quarterly is published by The Asphalt Institute, an international, nonprofit association sponsored by members of the industry to serve both users and producers of asphaltic materials through programs of engineering, research and education.

The Member Companies of the Institute, who have made possible the publication of this magazine, are listed on page 15.

Articles may be reprinted with credit line. Correspondence should be addressed to the Asphalt Institute Quarterly, Asphalt Institute Building, University of Maryland, College Park, Maryland.



# THE ASPHALT INSTITUTE

## THE ASPHALT INSTITUTE GETS A NEW HOME

The Honorable Jennings Randolph, former Congressman from West Virginia, addresses audience at exercises dedicating new Asphalt Institute Building on University of Maryland campus.



Dr. Wilson H. Elkins, University of Maryland President, presides at exercises held in campus armory.



Chairman of University's Board of Regents, Federal Judge William P. Cole, Jr., makes formal presentation of new building.



Dr. J. E. Buchanan, President of Asphalt Institute, accepts new building from University.



"IN ACCEPTING the structure dedicated here today, I want to assure all of you that we are mindful of our trust. We intend to use the facilities provided in a manner that will be beneficial and acceptable alike to the public, to our sponsoring industry and to our host institution."

With this declaration Dr. J. E. Buchanan, President of The Asphalt Institute, formally accepted from Judge William P. Cole, Jr., Chairman of the Board of Regents of the University of Maryland, the new Asphalt Institute Building on the University campus at College Park. The date was May 5, 1955; the place: the University's armory, where dedication exercises were held.

Among the audience of some 500 directors, staff members and friends of the Institute there were those who were witnessing the realization of a dream long-cherished—an event officially establishing a permanent home for an organization founded over 35 years before in a small office in New York City for the purpose of furthering the most efficient use of petroleum asphalt. Men such as Hal Pullar, Joe Draney, Herbert Spencer, Bernard Gray, Prevost Hubbard who had seen, and contributed to, the growth of The Asphalt Institute through the years—some of them lean, some of them turbulent years—were watching the achievement of an important milestone.

#### MORE ADEQUATE QUARTERS REQUIRED

For several years the need for larger and better-equipped quarters for the Institute executive offices and laboratories had been apparent to Institute directors. The phenomenal increase in the use of petroleum asphalt for road paving—from only 600,000 tons in 1919, when The Asphalt Institute was founded as the Asphalt Association, to the present 11,000,000 tons—created a situation which clearly required the provision of more adequate laboratory facilities.

The nature of the Institute's research and development program indicated relocation on a university campus; the need for association with an engineering school was also realized by the Institute directors and executive officers. It was important that Institute engineers and technicians have ready access to such a school's library, shops and other facilities, and it was desirable to work closely with the engineering faculty and students. Furthermore, the expanding scope of the Institute's research program called not only for more inside laboratory space but also room out-of-doors for field work.

#### WHY THE MOVE TO MARYLAND?

In mid-summer of 1953 the academic world was informed of The Asphalt Institute's aspirations and requirements. Several schools extended invitations to the Institute, with the ultimate decision narrowing down to a choice between Oklahoma A & M, and the University of Maryland. As Maryland was in the singular position of constructing its magnificent new Glenn L. Martin Institute of Technology plant, provisions were made for incorporating the Asphalt Institute Building into the building plans.

College Park, Maryland, is only a few minutes' ride from downtown Washington. In selecting the new headquarters, with its modern and greatly enlarged facilities, the Institute directors recognized that association with a great University and proximity to the National Capital offered not only superior opportunities for conducting an expanded investigation and development program but also greatly enhanced the services of the Institute, thus facilitating its continuous program in work-

ing with engineering colleges. Such a location, they believed, offered closer contact and liaison with government agencies concerned with the use of asphalt. It was also felt that, since the Institute's activities are international in scope, persons of national and international importance would find it convenient to visit and utilize Institute offices and laboratories.

These were the convictions that influenced the decision of The Asphalt Institute Board of Directors in December, 1953, to accept the invitation extended by the Board of Regents of the University of Maryland.

The move from New York City to the campus took place officially on January 1, 1955.

#### THE DEDICATION EXERCISES

Principal speaker at the dedication exercises, at which President Wilson H. Elkins of the University of Maryland presided, was former Congressman Jennings Randolph, now Assistant to the President of Capital Airlines and Treasurer of the American Road Builders' Association. He pointed out that the nation's 58 million motor vehicles are slowly beginning to choke a 1925 highway system built to accommodate only 17 million vehicles. "We cannot replace," he said, "that obsolete highway network with a new one geared only to the requirements of 1955. Instead, we must build for the future. We must replace this 1925 system with one designated to handle the expected flow of 85 million or 90 million vehicles in 1975."

Here, Randolph said, is the challenge that the research and development engineers of such centers as The Asphalt Institute must meet. Never was the need greater for detailed technological studies in the science of road building. "Tomorrow's highways are being built in the laboratories of today," he declared. "The engineers and technicians of The Asphalt Institute have played a vital role in advancing the technology of road construction. Even greater advances must be made if this dynamic and highly mobile nation is going to lick its critical transportation problem."

One of the most important aspects of the Institute's association with the University was brought out by President Buchanan in his speech accepting the new building.

"One of the significant developments in our present day society in the decade since World War II," he said, "is the realization and public acknowledgment, on the part of industry, of its dependence upon, and its debt to, education. What we are witnessing here today is one form of implementation of [this] idea . . ."

Directors and officials of both institutions could feel confident that their close association and cooperative efforts would bear much fruit in the years to come.

Later, President Elkins turns over  
key to building to Buchanan.





Pretty Leoma Naughton, National Football Queen, fires gun to start asphalt paving equipment down 393-foot stretch of road in front of Asphalt Institute Building.

## ASPHALT SPEED P



Rollers supply finishing touch with final compaction as television cameraman shoots the action.

WHILE the dedication exercises were taking place in the University of Maryland armory, a paving crew was working, in a race against the clock, to set a national speed paving record on a stretch of road 24 feet wide in front of the new Asphalt Institute Building.

When pretty Leoma Naughton, Maryland University sophomore and National Football Queen, fired the starting gun, a fleet of fourteen trucks loaded with asphalt mix, two asphalt spreaders and two rollers moved down the street toward the finish line 393 feet, or more than a standard city block, away.

The elapsed paving time for the distance was 24 minutes, 35 seconds. Less than an hour later, a 1923 Stanley Steamer automobile, carrying the platform dignitaries from the armory to the new building for the open house inspection, drove onto the new asphalt pavement. So quickly had the pavement cooled, despite the 90 degree weather, that the weight of the car, with its old fashioned high-pressure tires, caused no rutting whatsoever.

The paving exhibition served to demonstrate the greater speed and ease of road and street construction with asphalt and the fact that asphalt pavements are ready for traffic almost as soon as they are laid.



Two asphalt spreaders working in tandem head for finish line. Washington, D.C., contractor's crew of 28 also manned two rollers and fourteen asphalt-laden trucks.



The demonstration attracted a crowd of University of Maryland engineering students to the scene to watch spreaders place the asphalt hot-mix overlay.

## PAVING RECORD SET



Leoma points out the elapsed paving time of 24 minutes, 35 seconds, a national speed record.



Less than an hour later, pavement had cooled enough to bear weight of this 1923 Stanley Steamer. Left to right: Dr. Wilson H. Elkins, University of Maryland President; C. E. Simmons of Washington, owner of car; The Hon. Jennings Randolph, dedication speaker; Dr. J. E. Buchanan, Asphalt Institute President; H. B. Pullar, Chairman of Institute's Executive Committee.

Equipment for preparation of hot asphaltic mixtures for laboratory specimens.

- a. Bins for processed aggregates.
- b. Drawer-type ovens for heating aggregate.
- c. Thermostatically controlled heating kettle for asphaltic materials.
- d. Laboratory scales for weighing aggregates and asphalt.
- e. Equipment for mixing asphalt and aggregates.



## THE INSTITUTE LABORATORY



Hubbard Field Stability.



Hveem Stabilometer and Cohesimeter



Marshall Stability

Equipment commonly used for designing asphalt paving

**I**N THE ENDLESS SEARCH for new and improved uses of asphalt, engineers of The Asphalt Institute have played a distinguished role. In the immediate postwar years, however, the march of progress became a forced march. Institute engineers found themselves faced with the grim prospect of lagging behind, shackled to a research program that was restricted by the sheer physical limitations of a long-outgrown laboratory at the New York headquarters.

The need for expanded laboratory facilities was serious, and becoming acute. If the Institute were to maintain the integrity of its development program and strengthen its respected position in the technological field, improved laboratory facilities were imperative.

#### NEW LABORATORY FILLS NEEDS

The new laboratories on the University of Maryland campus at College Park fill this need. Occupying—with the exception of the reception foyer and the shipping room—the entire ground floor of the building, the laboratories have approximately three times the working area that was available in New York.

## LABORATORIES

The west wing houses the "hot line" and the physical testing apparatus. This workshop is a model of efficiency, laid out in the convenient U-shape. One arm of the U contains the drawer-type industrial ovens for pre-heating the aggregates used in making test samples; the electric kettle for heating the asphalt cement; the large mixer for blending the samples; the hot plates and test ovens.

At the bend of the U are the machines for running any of the standard asphalt pavement tests. These include the familiar Hveem machines—the stabilometer, the cohesiometer and the kneading compactor for preparing test specimens. There is the Marshall stability and flow testing equipment, developed by the Corps of Engineers and popular with many state highway departments today.

And there is, of course, the classic Hubbard-Field equipment, product of the minds of two former Institute engineers, Prevost Hubbard and Frederick C. Field.

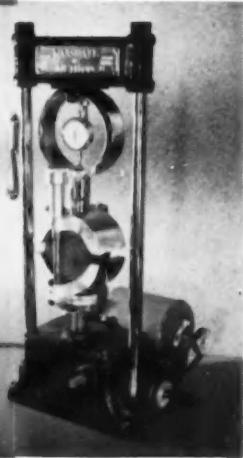
A small sound-proof chamber, off this laboratory, contains such equipment as the Los Angeles Abrasion machine, a rotating metal drum in which heavy steel balls are whirled with samples of rock to determine its wear resistance; the Ro-Tap sieve, which operates like a giant cocktail shaker to separate the various sizes of aggregates; and the diamond saw for carving up test specimens.

The east wing contains many rows of storage bins for stocking aggregates by size and type, a rock crusher, drying ovens and screening devices for separating mixed aggregates in quantity.

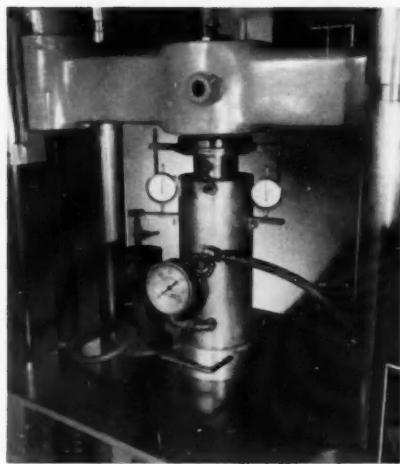
#### CHEMICAL AND SOILS LABORATORY

The spacious new chemical and soils laboratory occupies a large chamber in the southeast corner of the building. Here the Institute engineers and technicians can test the characteristics of asphaltic materials used in test specimens. Without

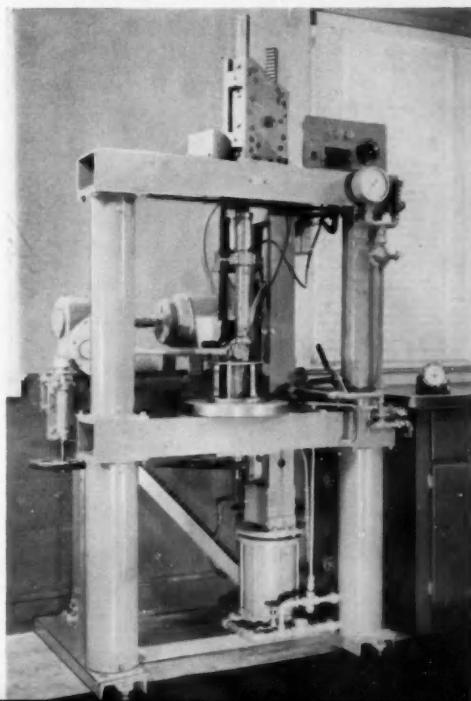
Kneading Compactor used in preparing test specimens for Hveem tests.



Marshall Stability and Flow.



Triaxial Test Cell.





Drilling asphalt pavement cores from completed roadway. Inset: Sawing core for examination and testing purposes.



This piece of equipment blends soil asphalt mixtures.



The Cleveland Open Cup Flash Point Test determines safe heating limits of asphalt cements.

this knowledge there can be no critical evaluation of the test data. Some of the pieces of equipment are the viscometer for determining the fluidity of a material at a given temperature, apparatus for determining the softening point and the flash point of asphaltic materials, distillation apparatus for use in certain standard tests on emulsified and cutback asphalts, extractors, water and steam baths and complete testing equipment for determining the engineering properties of soils.

One wall of this laboratory is faced with four laboratory hoods for carrying off noxious and flammable fumes.

#### NEW TEMPERATURE CONTROL APPARATUS

Included in the chemical laboratory is a unique piece of equipment, built especially for installation in the new building and according to specifications laid down by the Institute engineers. Un-named and, as yet un-tested, it contains three thermostatically-controlled temperature chambers for storing asphalt specimens under a wide range of temperature conditions, and an instrument for testing the ductility—or "stretchability"—of these acclimated specimens.

Equipment for drying and sieving aggregates for preparation of laboratory test specimens.



Laboratory for testing asphalts.



The study and development program at the Institute will be directed by John M. Griffith, Engineer of Research, and his assistant, Jean E. Hittle. This working force will be augmented in the early future by the addition of a chemical engineer and additional laboratory technicians.

### FUTURE PLANS

Future plans also are directed to the eventual use of a large plot of ground directly behind the new building. Here Engineer Griffith envisions, as part of the long-range program, the construction of field-test installations of various types where laboratory advances may be critically examined under conditions of field use.

"The use of asphalt in hydraulic engineering is attracting an increasing interest," Griffith explained. "Here at the Institute we share this curiosity about a relatively new field of study. We expect to devote substantially more time to this special application of asphalt and, of course, this should include some field work."

"In New York we were handicapped by lack of space for any field experimentation. We are fortunate at College Park in having such an area, quite literally, right at our back door."

In his appraisal of the broader long-range development program, Chief Engineer Arvin S. Wellborn has noted the versatility of asphalt and its multiplicity of new uses.

"In the Great Plains states it has become imperative to conserve our water resources," he declared. "The use of asphalt in dam facings and canal linings offers a real challenge to students of new techniques."

The use of asphalt with railroad track ballast and in checking beach erosion already has become part of the lore of asphalt engineering. Further refinements in the technique of asphalt paving and bold new advances into as-yet unexplored fields lie ahead.

"Into these laboratories," Wellborn added, "will be poured the ideas and speculations of construction engineers all over

the world. Out of them will come the tested findings of our own research staff."

Or, as the Hon. Jennings Randolph, principal speaker at the May 5 dedication of the new building, chose to put it:

"Tomorrow's highways are being built today in laboratories such as this. The engineers and technicians of The Asphalt Institute have played a vital role in advancing the technology of road construction. Even greater advances must be made in the future . . . and here is the challenge which the Institute's research program must meet."

Essentially, the laboratories of the Institute are testing grounds. As such, as President J. E. Buchanan has pointed out, they are in the joint service of the users and producers of asphalt.

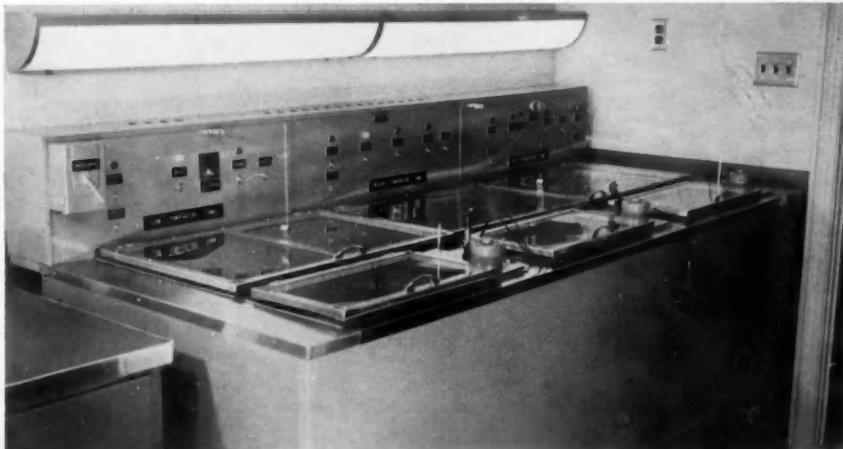
### CLOSE RELATIONSHIP WITH UNIVERSITY

Significantly, the new laboratories are housed on that section of the Maryland campus which includes the group of splendid new buildings which constitute the Glenn L. Martin Institute of Technology. A close working relationship with Dean Steinberg and his faculty of the engineering school is to be maintained. This is reflected in the arrangement which grants to the Institute's research staff ready access to the fine laboratories of the University's engineering section and to the Institute's libraries.

In turn, the Institute plans to encourage the engineering students at the University to participate actively in the Institute's own research program. This integration of the Institute's own special research program with the University curriculum can be expected to pay future dividends in terms of trained engineering talent already alerted to the incalculable potential of asphalt as an engineering material.

Meanwhile, however, the immediate value of the new laboratories will be reflected in a sharply accelerated testing program designed to meet the needs of asphalt engineers at a time when national interest in prompt, durable and economical highway paving is at its peak.

Thermostatically controlled water baths used in achieving standard temperatures for tests on asphalts.



Centrifuge for separating asphalt and aggregate from paving mixes.



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FROM offices in the Travelers Building, Richmond, Virginia, Robert K. Williams, Jr., serves as Institute District Engineer for the States of Maryland, North Carolina, Virginia, and the District of Columbia.

A graduate of Virginia Polytechnic Institute in 1941 with a degree in Chemical Engineering, Mr. Williams spent a brief period with the Virginia Department of Highways before entering the Army in December of that year. He was separated from service with the rank of Major in 1946 and rejoined the highway department as District Materials Engineer, a post he held for six years. He came to The Asphalt Institute in April, 1953, as Assistant District Engineer at Washington, D.C., later moving to Richmond in his present position.

Mr. Williams is a member of the Association of Asphalt Paving Technologists, the Highway Research Board, the Society of American Military Engineers, and the American Society of Civil Engineers.

SERVING as District Engineer for the Institute's Pacific Coast Division, Fred N. Finn covers a territory which includes Central and Northern California, and Nevada. His office is in the Forum Building, Sacramento.

Mr. Finn came to the Institute from the University of California at Berkeley where he was a lecturer and Assistant Research Engineer in soil mechanics and asphaltic mixtures. He also served for two years with the U. S. Navy's Civil Engineering Corps at the District Public Works Office at San Diego as Assistant for Airfield Pavements, and has been employed as an engineer with the Southern California Edison Company. During the latter part of World War II he served as an officer with a Naval Construction Battalion in the Pacific. He has received B.S. and M.S. degrees from the Universities of New Mexico and California, respectively.

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